("Miyawaki"); and rejected claim 38 under 35 U.S.C. § 103(a) as unpatentable over Miyawaki.

By this Amendment, Applicant cancels claim 23 without prejudice or disclaimer of the subject matter thereof. Accordingly, the objection to and rejection of claim 23 has been rendered moot.

With regard to the remaining rejections, Applicant respectfully traverses these rejections for the following reasons.

**I. Response to Rejection under 35 U.S.C. § 102(b)**

The Examiner alleged that claims 1, 2, 23, 35-37, and 39-45 were anticipated by Miyawaki. In response, Applicant respectfully asserts that Miyawaki fails to anticipate these claims.

In order to properly anticipate Applicant's claimed invention under 35 U.S.C. § 102(b), each and every element of the claim in issue must be found, either expressly described or under principles of inherency, in a single prior art reference. Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *See* M.P.E.P. § 2131 (8th Ed., Aug. 2001), *quoting Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Finally, "[t]he elements must be arranged as required by the claim." M.P.E.P. § 2131, p. 2100-69.

Claim 1 is directed to a semiconductor device comprising a combination of elements including, *inter alia*, "a gate electrode having a side-wall gate portion provided over a side surface of [a] convex semiconductor layer, the gate electrode applying an electric field effect to [a] channel region and [a] semiconductor region via a gate insulator, a thickness of the gate insulator being constant, and the side-wall gate portion

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

being offset with respect to a part of a lower portion of [a] source region and a part of a lower portion of [a] drain region" (emphasis added). Claim 2 is directed to a semiconductor device including similar recitations.

Miyawaki is directed to a semiconductor memory device. Miyawaki discloses that the device comprises a substrate 1012, a gate electrode 1023, an impurity region 1016, and a gate oxide film 1022. Miyawaki, Fig. 12. In contrast to claims 1 and 2, Miyawaki discloses that the thickness of gate oxide film 1022 in the part where region 1016 and gate electrode 1023 are opposed to each other is not constant, but increases in thickness. *See* Miyawaki, Figs. 12, 13. This occurs because of the formation method of Miyawaki. Miyawaki discloses that the element separation region is formed using the LOCOS method. *See* Miyawaki, Fig. 32. Consequently, a "Bird's break" is formed in that part of gate oxide film 1022 where region 1016 and gate electrode 1023 are opposed to each other. Therefore, the thickness of gate oxide film 1022 is not constant. Rather, the gate insulator increases in thickness at the lower portion of the gate.

Thus, Miyawaki fails to teach or suggest at least "a thickness of the gate insulator being constant." For at least this reason, claims 1 and 2 are allowable. Claims 35-37, and 39-44 are allowable at least due to their dependence from allowable claim 1 and claim 45 is allowable at least due to its dependence from allowable claim 2.

In response to the arguments presented in the Amendment after Final filed December 24, 2002, the Examiner alleged that these arguments were not persuasive. (Office Action, ¶ 4). Specifically, the Examiner alleged that Miyawaki shows "the gate insulator 1022 in fig. 19, column 13 line 45 ... being constant." (Office Action, ¶ 4).

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

However, the portion of Miyawaki cited by the Examiner or any other portion of Miyawaki does not disclose that gate insulator 1022 has a constant thickness.

More particularly, Miyawaki, at col. 13, lines 43-45, states "[a]fter the exposed Si surface has been washed, the gate oxide film 1022 is formed by thermal oxidation." This passage in Miyawaki, however, does not disclose that gate oxide film 1022 is formed to have a constant thickness. Furthermore, Fig. 19 of Miyawaki clearly illustrates that gate oxide film 1022 does not have a constant thickness. Particularly, gate oxide film 1022 increases in thickness where the p and p+ regions of buried layer 1013 intersect. *See* Miyawaki, Fig. 19. Thus, contrary to the Examiner's allegation, Miyawaki fails to teach a gate insulator film which has a constant thickness.

**II. Response to Rejection under 35 U.S.C. § 103(a)**

The Examiner alleged that claim 38 was unpatentable over Miyawaki. In response, Applicant submits that a *prima facie* case of obviousness has not been established.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim elements. Furthermore, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." *See* M.P.E.P. § 2143.01, *quoting In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings. Finally, there must be a reasonable expectation of success. *See* M.P.E.P. § 2143, pp. 2100-122 to 127.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Claim 38 depends from claim 1 and thus incorporates the elements of that claim. As mentioned above, Miyawaki fails to teach or suggest at least "a gate electrode having a side-wall gate portion provided over a side surface of [a] convex semiconductor layer, the gate electrode applying an electric field effect to [a] channel region and [a] semiconductor region via a gate insulator, a thickness of the gate insulator being constant, and the side-wall gate portion being offset with respect to a part of a lower portion of [a] source region and a part of a lower portion of [a] drain region" as recited in claim 1 and incorporated in claim 38 (emphasis added). Thus, a *prima facie* case of obviousness has not been established because Miyawaki fails to teach or suggest all the elements of claim 38. For at least this reason, claim 38 is allowable.

## III. Conclusion

In view of the foregoing, Applicant respectfully requests the reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, L.L.P.

Dated: May 14, 2003

By: _____
Bryan S. Latham
Reg. No. 49,085

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com